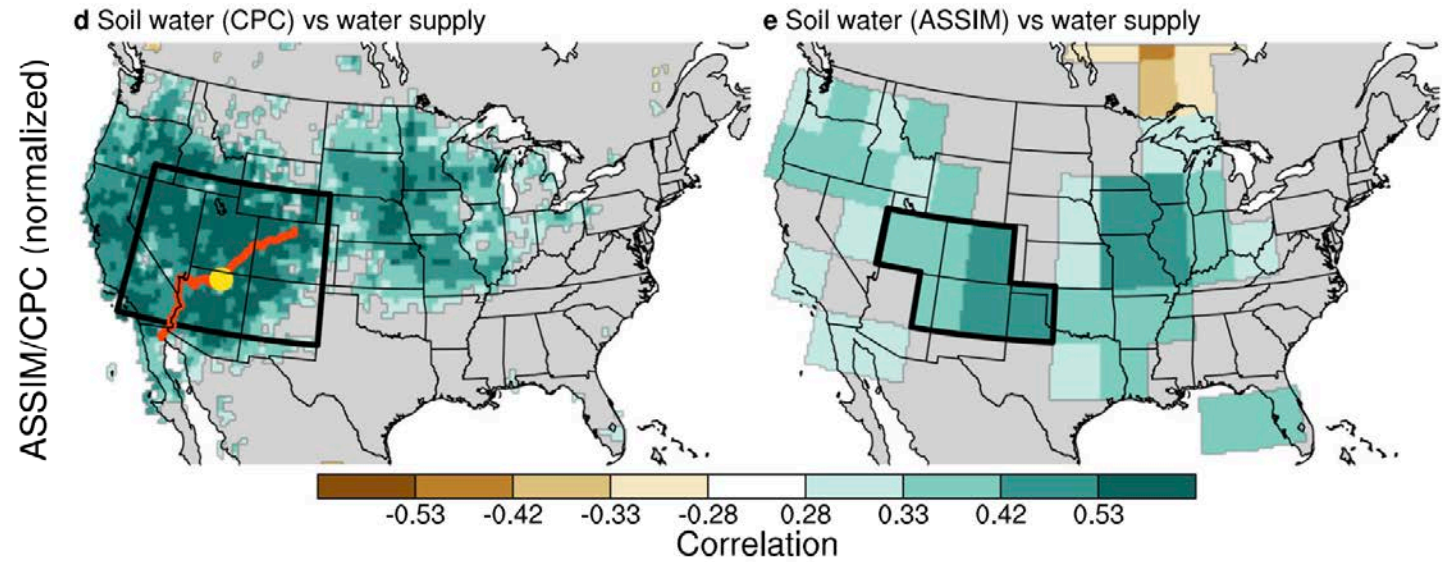
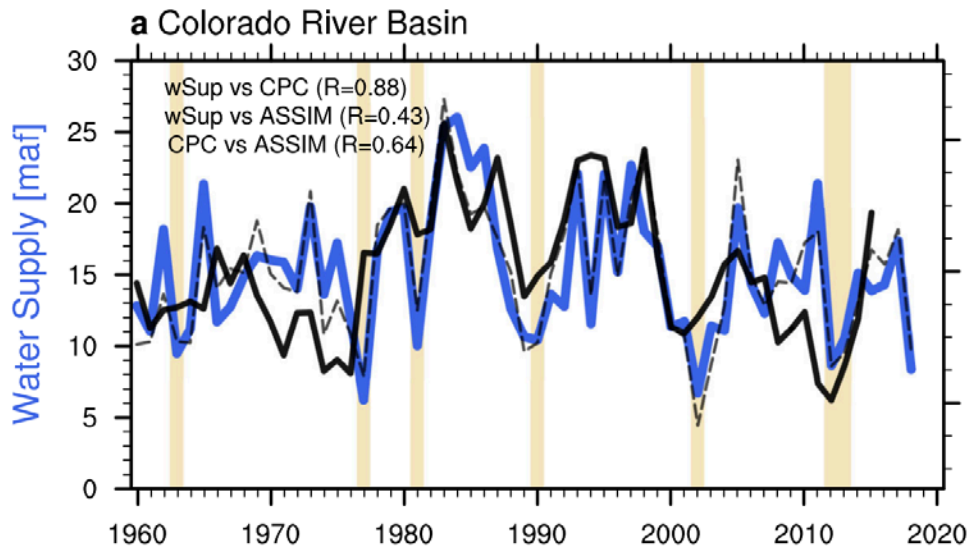


# Colorado River water supply is predictable on multi-year timescales owing to long-term ocean memory

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## Ocean Data Partial Assimilation



Current drought forecasts focus on short-term indicators which limits their usefulness in water supply estimate.

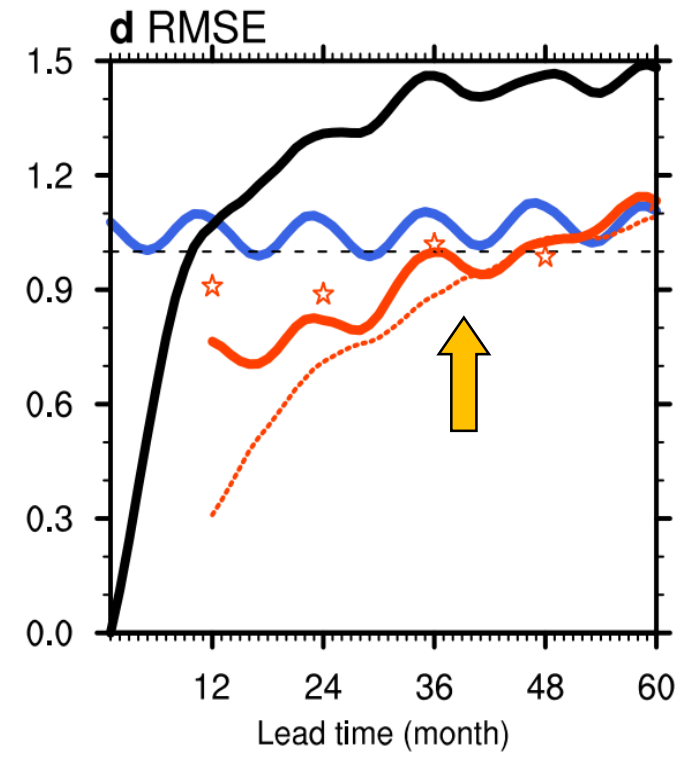
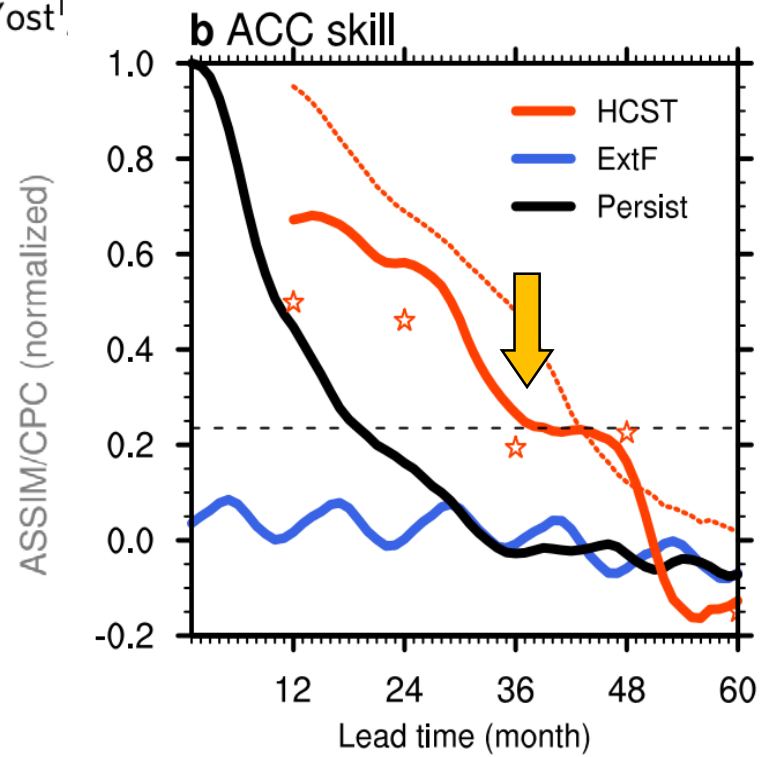
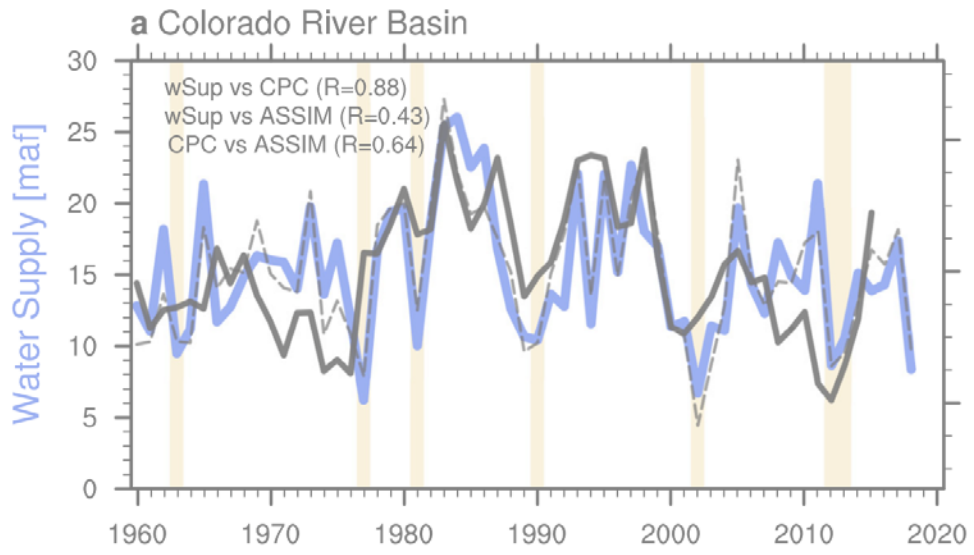
Water managers are familiar with El Niño and La Niña impacts on the southwestern U.S. However, the upper basin of the Colorado River has its unique dynamics connected to different parts of the oceans.

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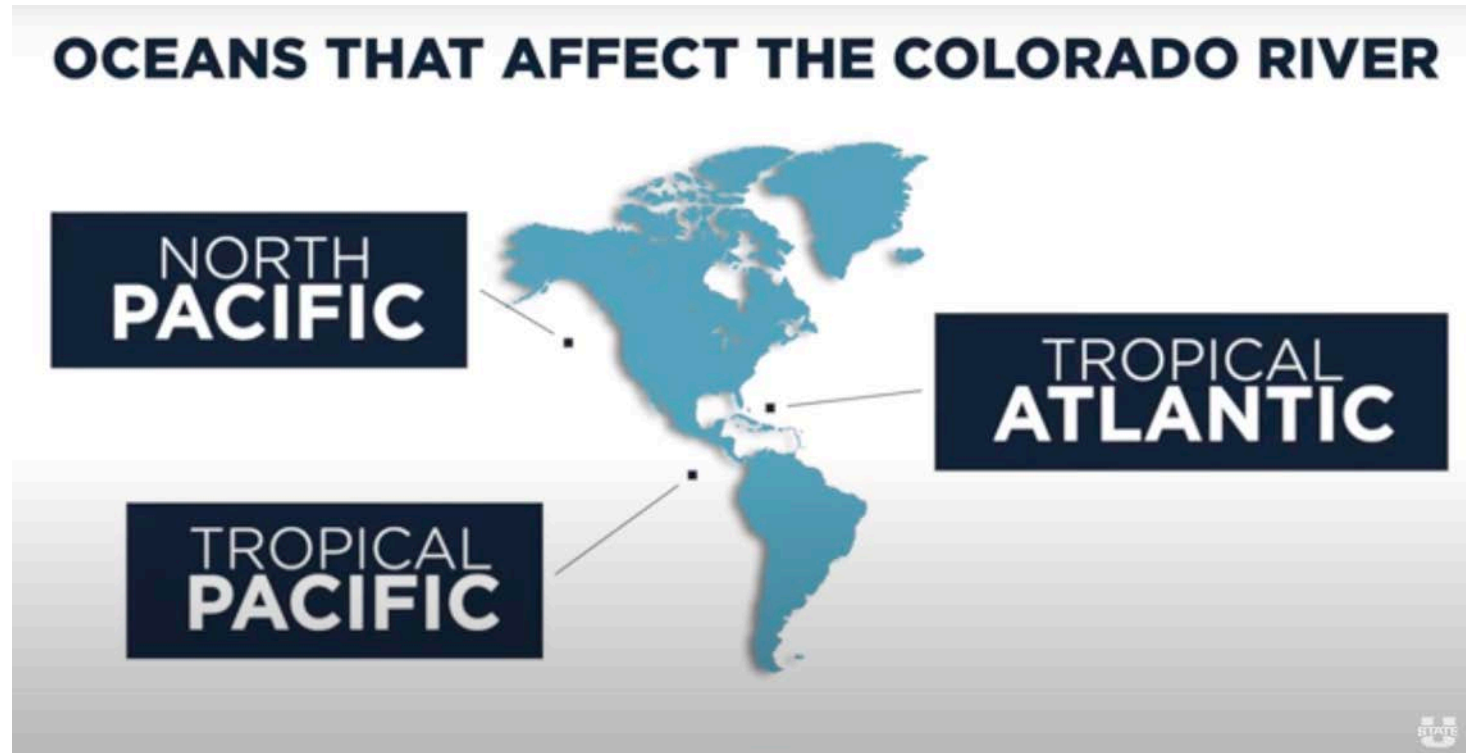
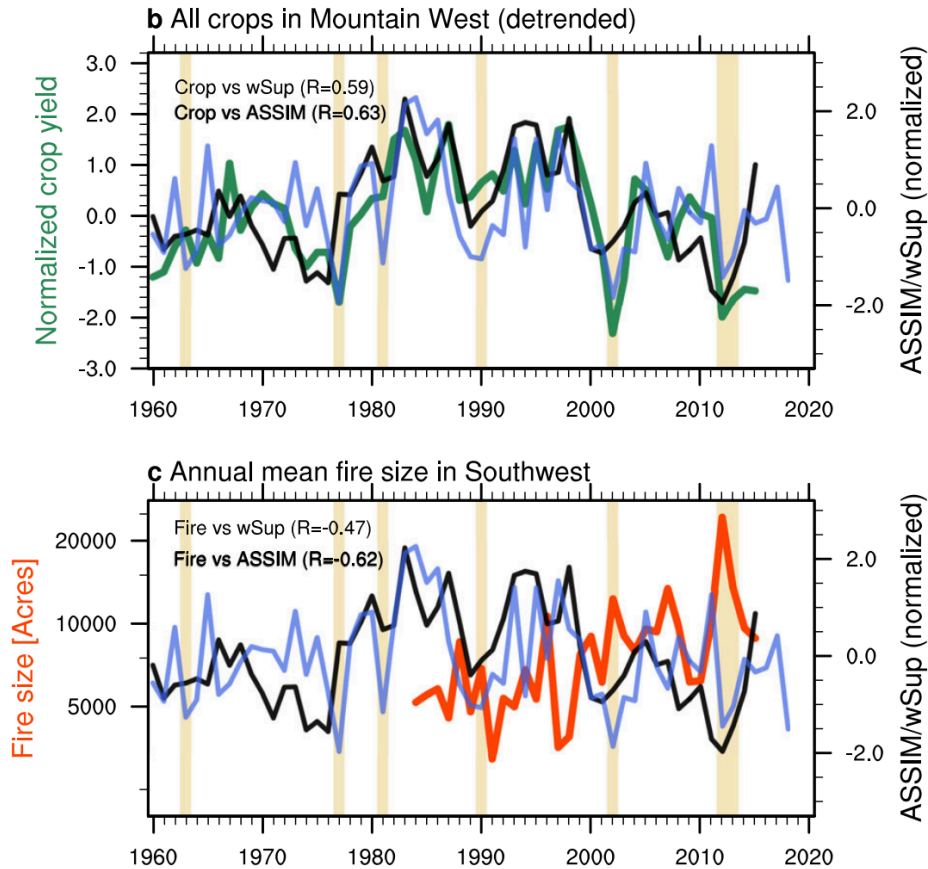
The hindcast run demonstrates skill in predicting the Colorado River water supply for 2-3 years in advance.

Further enhanced predictive skill could be achieved by improving the simulation of soil water variability.

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Having a 2-year lead-time on preparing for drought could have impacts on farmers as they plan crop rotations and make business decisions.

A long-term forecast of drought in areas impacted by the Colorado River could give managers a jump-start in preparing for wildland fire seasons.

**Fig. 6 Interannual-to-decadal variability of agriculture production and mean large wildfire size.** Annual mean time series